

# EUROPEAN PATENT OFFICE

## Pat nt Abstracts of Japan

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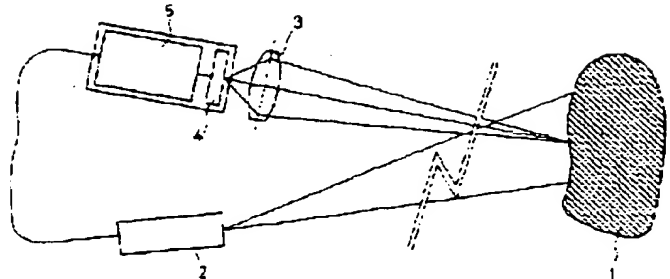
APPLICATION DATE : 23-05-95  
APPLICATION NUMBER : 07146949

APPLICANT : OLYMPUS OPTICAL CO LTD;

INVENTOR : MIZOGUCHI TOYOKAZU;

INT.CL. : G01B 11/00 G01C 3/06

TITLE : TWO-DIMENSIONAL DISTANCE  
SENSOR



ABSTRACT : PURPOSE: To provide a depth map directly without mechanical scanning of an illuminating light by making possible attainment of three-dimensional distance information on an object on the basis of the distribution of signal charges of a two-dimensional image-sensing element.

CONSTITUTION: A light beam subjected to luminance modulation by a prescribed frequency is emitted from an illuminating device 2. The image of an object 1 illuminated by this light beam is formed on a two-dimensional image-sensing element 4 through an imaging optical system 3 and the information is read out by driving the element 4 by a processing circuit 5. At this time, a phase shift corresponding to a three-dimensional structure of the object 1 occurs in an illuminating light on each pixel sensed by the element 4. By constructing the element 4 so that the light photosensitivity can be modulated by a prescribed frequency, a large amount of signal charge is stored in the pixel wherein the phase of the sensed illuminated light and that of the photosensitivity of the element 4 coincide with each other, while only a small amount is stored in the pixel wherein they do not coincide. In other words, the detection of the phase of the sensed illuminating light is executed in each pixel and the amount of the charge stored consequently represents distance information on the object 1 directly.

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